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Studies on Schismatoglottideae (Araceae) of Borneo XX: Beccari's «La Più piccola delle Aracee» (*Microcasia pygmaea*) recollected and transferred to *Bucephalandra* Schott*

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Studi sulle Schismatoglottideae (Araceae) del Borneo XX: «La più piccola delle Araceae» del Beccari (Microcasia pygmaea) riscoperta e trasferita a Bucephalandra Schott — Dopo circa 145 anni è stata riscoperta *Microcasia pygmaea* Becc. Una attenta indagine rivela, contrariamente a recenti trattamenti tassonomici, che è da ritenersi una specie distinta del genere *Bucephalandra*, ma tuttavia non conspecifica di *B. motleyana* Schott. *Microcasia pygmaea* Becc. Viene qui trasferita in *Bucephalandra* come **B. pygmaea** (Becc.) P.C. Boyce & S.Y. Wong, **comb. nov.** Vengono fornite alcune note tassonomiche basate sulla morfologia. *Bucephalandra* è considerato comprendere cinque specie, esposte in una nuova chiave identificativa. Vengono anche fornite note tassonomiche su *Bucephalandra* e *Microcasia*, e *B. pygmaea* viene illustrata da piante vive.

Key words: Araceae, Borneo, *Bucephalandra,* Malaysia, *Microcasia,* Sarawak, Schismatoglottideae.

Introduction

Odoardo Beccari (1879) described and figured a remarkable new aroid based on material he gathered from humid riverside cliffs along the Sungai Entabai, in modern Sarikei Division of Sarawak, Malaysian Borneo, in September or October 1867.

The most striking feature of Beccari's plants is their diminutiveness, the largest not exceeding 25 mm tall, and with several only half this size. The equally modest inflorescence, with a spathe to only 13 mm long, although comparatively enormous for the size of the overall plant, combined to make it the smallest then-known aroid; hence Beccari's paper title «*La Più piccola delle Aracee*».

Beccari proposed a new genus, *Microcasia*, for his plants, accentuating their tiny stature with the trivial epithet *pygmaea*. Unfortunately, owing to errors and omissions in Schott's plate of *Bucephalandra* (Schott, 1858: t. 56; see Bogner, 1980) Beccari was misled into supposing his Entabai aroid did not fit into pre-existing *Bucephalandra* to which, in fact, it belongs. Not until Josef Bogner's critical re-examination of *Bucephalandra* were the generic problems engendered

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by Schott's inaccurate plate revealed, and resolved (Bogner, 1980). Prior, neither Hotta, who took a particular interest in rheophytic Schismatoglottideae (e.g., Hotta, 1965), nor Engler, when working up *Bucephalandra* and *Microcasia* for *Das Pflanzenreich* (Engler, 1912), perceived the problems.

It seems plausible that Beccari and Hotta (and indeed, although perhaps improbably, Engler) never examined the type of *B. motleyana* [*J. Motley 404* (K)], relying instead on Schott's typically elegant but uncharacteristically seriously flawed plate. However, it is perhaps more likely that Engler, with whom Beccari corresponded regarding the identity of his miniscule Entabai aroid, *did* cursorily examine the Motley type, but failed to notice the irregularities of the Schott plate.

This might appear an outrageous suggestion were it not for the fact that specimens of obligate rheophytic Schismatoglottideae species are notoriously troublesome to interpret taxonomically. Even fertile, when not damaged by pollinators, or post-preservation by herbarium insects, material often suffers from failure on the part of the collector to prepare fresh inflorescences in a manner to enable convenient examination by opening/removing the spathe to reveal the spadix before pressing. Removing the spathe from a long-since dried specimen without damaging the underlying, usually adhering, spadix is almost impossible.

Add to this the often minute, always intricate, and above all delicate floral morphologies; it is little wonder that so many specimens in herbaria are wrongly identified for want of critical examination.

With customary painstaking exactitude Bogner (1980) clarified the circumscription of *Bucephalandra*, highlighting the inaccuracies – lacking diagnostic shield-shaped staminodes between the staminate and pistillate flower zones, and incorrectly depicting parietal (not basal) placentation – of Schott's published plate, and demonstrating Beccari's *Microcasia* to be a junior synonym of *Bucephalandra*. However, problems remain with Bogner's species' delimitation which has influenced later publications (e.g., Bogner, 1984; Bogner & Hay, 2000). In particular Bogner places much emphasis on the (genuine) variability of the vegetative morphology, notably of the leaf blades, but assumed that this variability extends to the floral morphologies. This is not so and has obscured a suite of reliable, admittedly not conveniently observable, floral morphologies. Floral morphologies of rheophytic Schismatoglottideae are critical and *Bucephalandra* is no exception.

These key floral morphologies are:

- Morphology of the appendix staminodes, particularly the presence and nature of any surface ornamentation.
- Morphology of the staminate flowers, notably the plan and three dimensional shape of the filament.
- Insertion, orientation, and shape of the thecae, including any surface ornamentation.
- Orientation, posture, shape, and relative length (to the thecae and filament) of the thecae horns.
- Morphology of the shield-shaped staminodes, notably overall (plan) shape, and topology of the ventral surface.
- Shape and colour of the pistils.
- Shape of the sub-pistillar staminodes.

Our observations in the field and on an extensive living collection conclude that there are many more species of *Bucephalandra* than the two accepted by the last revision (Bogner & Hay, 2000). Some species are already described in *Bucephalandra* (*B. catherineae* P.C. Boyce, Bogner & Mayo, 1995, *B. magnifolia* H. Okada & Mori, 2000) but almost since publication have been treated as synonyms of an artificially polymorphic *B.motleyana*, Others, such as the subject of this paper, have been previously described in the genus *Microcasia* (see Appendix A) will eventually require transferral to *Bucephalandra*. A rather large number are undescribed and await formal description in *Bucephalandra* and will be the subject of forthcoming papers. One reason we are reluctant to transfer mechanically pre-existing species to *Bucephalandra* is that recognition of Schismatoglottideae based solely on preserved dried (pressed) material is highly problematic. For this reason, we only recognize novelties (and make transfers) of taxa that we have observed living.

Bucephalandra Schott, Gen. Aroid. t. 56 (1858) & Prodr. Syst. Aroid. 319. 1860

Engler in A.L.P. de Candolle & A.C.P. de Candolle, Monogr. Phan. 2: 354 (1879); Brown in G. Bentham & J.D. Hooker, Gen. Pl. 3(2): 984-985